THE MARINE RECORD.

DEVOTED TO COMMERCE, ENGINEERING AND SCIENCE.

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(ORGANIZED 1880.)

CLEVELAND VESSEL OWNERS' ASSOCIATION.

(Membership 1892.)

One hundred and sixty-three steamers, and One hundred and forty-four sail and barge, } Aggregating 298,127 tons.

Maintains shipping offices at Cleveland, Ashtabula Harbor, Fairport and Toledo. Regulates wages, protects crews and takes cognizance of all matters in the interest of the members and of the lake commerce generally.

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THE MARINE RECORD.—Official Paper.

CLEVELAND, O.

First Lieutenant, W. C. De Hart, of the revenue marine steamer Fessenden, stationed at Detroit, in a letter to Commodore George W. Gardner, speaks very highly of the training ship project for this port, and suggests that the bark S. P. Chase, formerly a school ship for cadets in the revenue service, but now laid up, would be a good vessel for the purpose, and might be procured from the government.

Capt. Alexander F. Norris, from Mobile, Ala., an old and well known lake mariner, has just arrived in the city to spend a vacation of a couple of months. The captain has found his sight suffering somewhat from the hot glare of the sun down south, and during his stay here will undergo medical treatment.

The receipts of lumber last week amounted to 9,121,000 feet, iron ore, 36,565 gross tons, and the shipment of coal by lake amounted to 13,066 tons, the average being cut down on account of the coal handler's strike.

All is quiet along the docks, and the coal handlers are again at work, having accepted the terms of their employers.

Capt. Frank Stanton has been appointed master of the Menominee Line steamer German, vice Capt. Dunn, resigned. Capt. George Manning has been appointed master of the steamer Northerner, vice Captain Stanton, resigned.

General Manager Carter, of the D. & C. line, visited the city from Detroit on Tuesday, and stated that Chicago people have been making a futile attempt to lease the steamer City of Detroit No. 1 for World's Fair excursions this summer, but he prefers to keep up the Put-in-Bay line, feeling sure of an extensive patronage this season.

The steel steamer Republic, which was on the rocks at Topsail Island, is in the Ship Owner's dry-dock for repairs to her bottom in which there are four large holes, twenty-six plates will have to be taken off and replaced with new ones, though from the way bottom damage is repaired here it will only take a few days to get her ready for work again.

Capt. James Millen, of the well-known Detroit firm of Parker & Millen, visited the city this week on vessel business; we are pleased to say that Capt Millen is looking and feeling well and hearty.

R. K. Winslow, the veteran vessel-owner of this port, is around again attending to business, and though not robust, is in fairly good health.

Capt. Hatch, the inventor and patentee of an economical freight carrier, a description of which was given in these columns last winter, was in the city this week on business in connection with his patented plans of construction and equipment, it is likely that some of his patents will be placed on new tonnage out of this port.

Edward Nesbitt has been appointed shipping-master for the Lake Carriers' Association at Escanaba, Mich.

In speaking of the new Anchor Line steamer Codorus, under construction at the yards of the Union Dry Dock Co. at Buffalo. Joseph R. Oldham stated yesterday that she was ready for launching so far as the hull was concerned, but she will not be put in the water before the end of next week. Mr. Oldham speaks in the highest terms of this steamer, as regards design, strength, and general efficiency, and says we have little to fear from either coast or foreign competition, while the lake ship yards are worked by such conscientious naval architects and ship-builders as they now are. The ability of Mr. Edward Gaskin, of the Union Dry Dock Co., has been ably demonstrated by the construction of the Codorus, and in the trio of sister ships now building for the Anchor Line she will prove herself equal to the honors of the Buffalo built steel tonnage, and add to the well-known prestige of her builders.

At a meeting of the finance committee of Lake Carriers' Association, held on Tuesday, James W. Millen, H. A. Hawgood, Thomas Wilson, Alexander McDougall, and C. H. Keep were appointed a committee to investigate the condition of the water at the Soo locks. Vesselmen are satisfied there is more water than reported. Boats daily have passed through without trouble drawing 13 feet 8 inches and more, while the highest stage reported has been 14 feet 6 inches. The committee will confer with Gen. Poe before going to the Soo next week.

CHICAGO, ILLS.

Special Telegram to The Marine Record.

The schooner Mediator is undergoing extensive repairs:

The schooner Vega, going down the river in tow, collided with State street bridge, and carried away her jib boom and head-gear, damaged the bridge, and obstructed navigation for about an hour. The schooner C. C. Trowbridge had a similar experience on Tuesday morning.

J. D. Brown, sales agent for T. M. Sullivan's Marine Supply Store, returned from Green Bay City last Thursday with his newly wedded wife, *nee* Anna Zimmerman, who he entered into partnership with the previous day. We wish them much happiness.

The well known firm of Finney & Channon, shipchandlers, dissolved partnership May 5th. The business will be carried on in the future by Geo. C. Finney & Co.

James Wheeler, formerly book-keeper with the Chicago Dry Dock Co., has been appointed to a similar position at George C. Finney & Co.'s.

The tremendous heavy rain storm which visited Chicago and vicinity last week, caused the water in the river to overflow its banks at the lumber yards up the South branch. Last Thursday, Friday and Saturday navigation was almost at a standstill in consequence of the heavy current.

The O. S. Richardson Fueling Co. have supplied a long needed requirement on Chicago river. They having built a scow with a carrying capacity of 200 tons of fueling coal, upon which is built a derrick which can be used for coaling vessels in the river, and also for lightering. The scow has been named "Spring Heel Jack," a cognomen by which John F. Hodell, the company's sales agent, is well known.

Grain freights Tuesday were weak, at 2 cents. on wheat, and 1¾ cents on corn to Buffalo.

There is a very large lumber laden fleet in port this week. The schooner Commerce went up the river with a tremendous big deck load of lumber, and the schooner Windsor, with a similar deck load of cedar ties Monday. The lighthouse tender Dahlia is in port undergoing repairs to her boiler.

Captain Charley Moore, of the schooner Fanny Neil, is suffering severely from injuries received when the schooner broke away from the White and Friant on Lake Superior. He will not take the Neil out next trip.

WILLIAMS.

BUFFALO, N. Y.

Special Correspondence to The Marine Record.

The steamer Gazelle has arrived here from Detroit, and appears to be in excellent shape. Over $3,000 was spent on her last winter, and she made her first trip to Crystal Beach on Tuesday afternoon. Capt. Thomas Doyle is in charge.

The excursion steamer William Harrison, arrived at Niagara Falls from Boston last Saturday. Her clearance read from Boston to Niagara Falls, and is undoubtedly the only one ever issued between those two ports direct. The Harrison was brought up by Capt. Campau, who will sail her this summer. He says the trip was a very pleasant one until about thirty-five miles west of Quebec, where much ice was encountered The steamer had to run back and was delayed several days. The entire trip occupied five weeks.

A large new fuel scow for H. K. Wicks & Co., was launched from the Union Dry Dock yard last week.

The big steamer W. H. Gilcher, with a cargo of 80,000 bushels of wheat from Duluth, delivered her cargo at four different elevators, and ran short but 13 bushels on the whole amont.

The steamer A. L. Hopkins has been delivered to the new Union Transit Line, who will place her between here and Duluth with the Avon and Portage.

The steamer Russia, which came into port last week, is in the Union Dry Dock, she shows a badly twisted stem and several bad holes in her port bow. It is estimated that the value of the portion of her deck load of package freight, consisting of clothing, stoves and iron pipe, which was jettisoned amounted to $50,000.

In the survey on the Russia Mr. Oldham represented M. M. Drake, the owner, and Mr. Gaskin, Smith, Davis & Co., the underwriters. The survey shows a total hull damage of $11,376, $9,376 of that amount, being a particular average and the balance a general average. About forty new plates are required, besides a new stem, frames stringers, etc. Mr. Edward Gaskin, superintendent of the Union Dry Dock Co., will, no doubt, have the entire work on her completed in about two weeks.

The schooner Northwest, after having a rough time on Lake Superior, was found to have wet about 650 bushels of her wheat cargo, when it was examined here. The loss fiel on the owners of the grain.

The local branch of the new Lake Carriers, began here last week, and their recommendation to have Captains Fletcher and Lynch appointed shipping-masters has been acted upon. The official appointment was received two days ago.

The union sailors continue to kick up occasional rows, and have taken off so many crews of non union men in the past week, that nearly every sailing vessel not employing union crews have requested public protection while in this port.

E. H. Nesbitt, who was associate shipping master with Boyd here last year, has been appointed shipping-master in Escanaba by the new Lake Carriers Association. Nesbitt is a capable man, and does not take the imitative in making trouble, but when trouble is made the other men want to look out, for Nesbitt's strength, and ability to use it effectively has been often tested at Buffalo.

The Lake Line managers met here Saturday and restored eastbound rates to a basis of 15 cents, sixth class.

(*Concluded on page nine.*)

ACROSS THE LINE.

Special Correspondence to The Marine Record.

TORONTO, CAN.—So there is a discrimination between saloon or steerage passengers with regard to vaccination! Dr. Landerkin, in the Canadian House of Commons at Ottawa, asked the Government if the system of vaccination pursued in the past would be carried out in the future. Saloon or intermediate passengers, the doctor understood, were not vaccinated, whilst steerage travellers were compelled to undergo the ordeal. The Government said the reason why saloon passengers were not inoculated was because the United States did not insist upon it, and the enforcement of such a regulation in Canada would drive traffic from Canadian to American vessels on the transatlantic route.

While considering the railways and canals estimates in the House at Ottawa, the new Soulanges canal, which will parallel the Beauharnois canal on the River St. Lawrence, came up for discussion. Mr. Haggart, Minister of Railways and Canals, explained that the estimated cost of the work was $4,750,000, the amount expended $11,304, and that two contracts had been awarded, one to O'Brien & Co., of Montreal, and one to Goodwin, of Ottawa. Some opposition members regarded the expenditure as enormous and unnecessary, considering the financial condition of the country. Mr. Haggard said that the new canal could be built for about $1,000,000 less than it would cost to deepen the Beauharnois Canal. Mr. Gibson agreed with the Minister that it would be cheaper for the Government to construct a new canal than to improve the old one. Mr. Scriver disapproved of the determination of the Government to build the new canal, and said it was viewed with great dissatisfaction by the people on the south side of the St. Lawrence River, where the Beauharnois Canal was located. The item passed.

Mr. Haggart, speaking at the House of Commons, in reply to Sir Richard Cartwright, said that the Canal system from Lake Superior to Montreal would cost in all $43,020,000, of which $27,465,000 had been expend d. The completion of the canals would require an expenditure of $15,000,000. In answer to an expressed desire for information by Sir Richard Cartwright, the Minister stated that a vote of $74,000 for the Trent Valley Canal was intended for a lock and other improvements between Lakefield and Balsam Lake.

The recently reported action of President Harrison, *re*, the charging of tolls to Canadian craft passing through the Sault Ste. Marie Canal, is not causing so much comment as might have been expected. There is considered to be ample justification for the step on the part of the United States Government, but it will not much hurt the general Canadian marine interest. Those vessels which will suffer most are the craft of the Canadian Pacific Railway; and the consensus of opinion among vesselmen seems to be: "We are delighted to see such an arrogant monopoly catch it!"

The low water is still causing much trouble at this port. A large quantity of timber has been, and is being shipped, but vessels have to get outside the harbor to finish loading, thus furnishing work for the tug Frank Jackman, which has been engaged to tow out the deals. Incoming vessels have to carefully avoid loading to a deeper draught than ten feet, otherwise they cannot enter. The harbor commissioners collect their tolls all the same.

J. A. C.

AURORA'S.

M. A. Veeder, writing to the editor of the "Scientific American," from Lyons, N. Y., states that there was a bright aurora on the night of Saturday, April 23d. This display is of special interest, because it is the sixth successive recurrence at the precise interval of twenty-seven days, the dates being as follows: December 9, January 5, February 2, February 29, March 27, April 23. This period corresponds to the time of a revolution of the sun as viewed from the earth, or, in other words, a synodic revolution. Upon each of these dates, also, there was at the sun's eastern limb a disturbed area located south of the equator appearing by rotation. In like manner a record now before me shows that disturbed areas in the sun's northern hemisphere are attended by the appearance of the aurora when coming into view by rotation, but that this is the case in the autumn months instead of the spring. Now, in the autumn the north pole of the sun is inclined toward the earth and in the spring the south pole is thus inclined and the sun spots are invariably located within the limits of a narrow belt on each side of the sun's equator and at comparatively a short distance from it. Thus it appears that, in order that a solar disturbance may have its full effect upon the magnetism of the earth and produce an aurora, it must be in a particular location, namely, at the eastern limb, and as near as possible to the plane of the earth's orbit.

TRAFFIC THROUGH ST. MARY'S FALLS CANAL.

The following is the statement of traffic through the St. Mary's Falls Canal, Mich., for the opening month of April, and represents only a few days of navigation. Eastbound—Flour 67,250 barrels, corn 31,000 bushels, wheat 2,042,114, bushels iron ore 19,485 tons, lumber 1,563 M. feet, unclassified freight 3,778. Westbound—Coal 151,495 tons, manufactured iron 119 tons, salt 17,842 barrels, unclassified freight 8,214 tons. Eastbound freight—net tons 94,473. Westbound freight—net tons 162,504. Total 256,977.

A CANADIAN VIEW.

OTTAWA, ONT.—A section of the Canadion press is alarmed at the proposed message of President Harrison recommending discrimination against Canadian vessels passing through the Sault Ste. Marie Canal on the Michigan side. In view of the alleged treatment accorded American crafts traversing the Canadian canals, Canadian vessel-owners are also sharing in the alarm, and the Ottawa authorities have been urged to hurry to completion the canal now under construction at Sault Ste. Marie in Canadian territory.

Unfortunately, however, for Canada, the Soo Canal will not be completed until 1894. It will cost nearly $4.000,000. In the meantime Canada's vast shipping trade from Lake Superior ports, like Fort William and Port Arthur, is at the mercy of the United States Executive. This situation is all the more embarassing as the Canadian railways have been quite unequal to the task of handling the Manitoba and Northwest grain crop.

The proposed discrimination against Canada is regarded in official circles as very unjust and as a violation of the treaty of Washington. If the Ottawa authorities have equally violated its provisions in the matter of the St. Lawrence canals, granting American vessels privil ges in theory, but refusing them in point of fact, the same blame, it is asserted, attaches to the United States.

Under the order in Council passed the other day by the Canadian Government at the solicitation of ship owners, it is provided that vessels passing through the Welland canal shall pay the regular rate of 20 cents a ton on the grain they carry, whereas those proceeding to Montreal through the St. Lawrence canals shall receive a rebate of 18 cents a ton.

The arrangement applies equally to United States and to Canadian vessels. The American vessel, equally with the Canadian vessel that passes to Montreal receives the rebate. The Canadian vessel equally with the American vessel that goes no further than Lake Ontario receives no rebate.

According to the American view, however the system discriminates against American' shipping, for it taxes vessels which unload their grain at Ogdensburg 18 cents higher than vessels which continue the journey to Montreal. Montreal is thus favored at the expense of the New York lake or river ports.

President Harrison's scheme of retaliation is not new. It was first suggested by the Interstate Commerce Commission. That body declared that the St. Lawrence Canal rebate was a violation of the canal clauses of the treaty of Washington, and recommended that, as a measure of justice, the Soo Canal should no longer be free to Canadian vessels.

That the Canadian arrangement is a violation of treaty rights is a charge open to question. The treaty of Washinfiton specifies that Canadian and United States vessels shall be treated alike by Canada in respect of canal toils. It also stipulates that the United States Government shall use its influence with the various States to induce them to extend to Canadian vessels equal rights upon the American canals, the Erie, for example.

(*Concluded on page seven.*)

A NEW ELECTRIC SEARCH LIGHT.

WE GIVE BELOW DESCRIPTION and illustrations of the new "D" type search light projector, recently designed by the Edison General Electric Co. One illustration shows the side and front view, and the other the lamp mechanism, which will give a good idea of the general style of this projector.

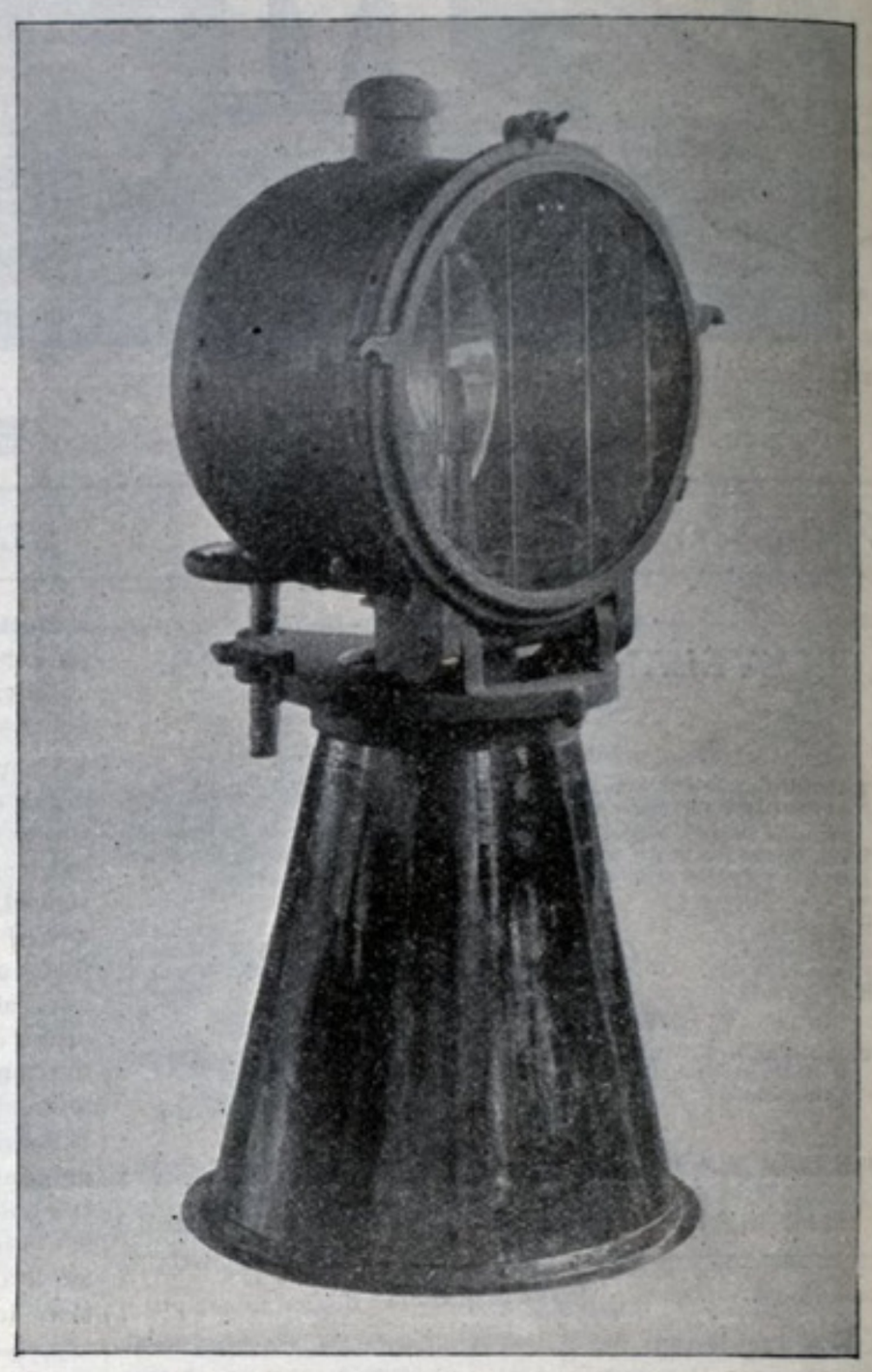
The lamp is designed to run on an incandescent circuit with a potential of 50 to 55 volts, at which it requires about 15 amperes of current and gives a light of 3,000 c. p. A suitable r sistance is placed in series with the lamp to permit its adjustment to the potential of different circuits upon which it may be used. The lamp is both self r gulating and self focusing. The lower carb n is pressed upwards against fixed stops by a spiral spring, thus maintaining the arc in the focus of the reflector. A hand adjustment is provided for raising and lowering these stops, by which the vertical position of the arc can be altered. The upper carbon falls by gravity, its de cent being perfectly reg u ated by the lamp mechan sm, so that great steadiness of light is obtained. The negative carbon being placed a little back of the line of the positive carbon, a crater it thus formed on the side of the latter and nearly all the light is thrown toward the reflector. A ventilating hood on the top of the drum provides an escape for the heat.

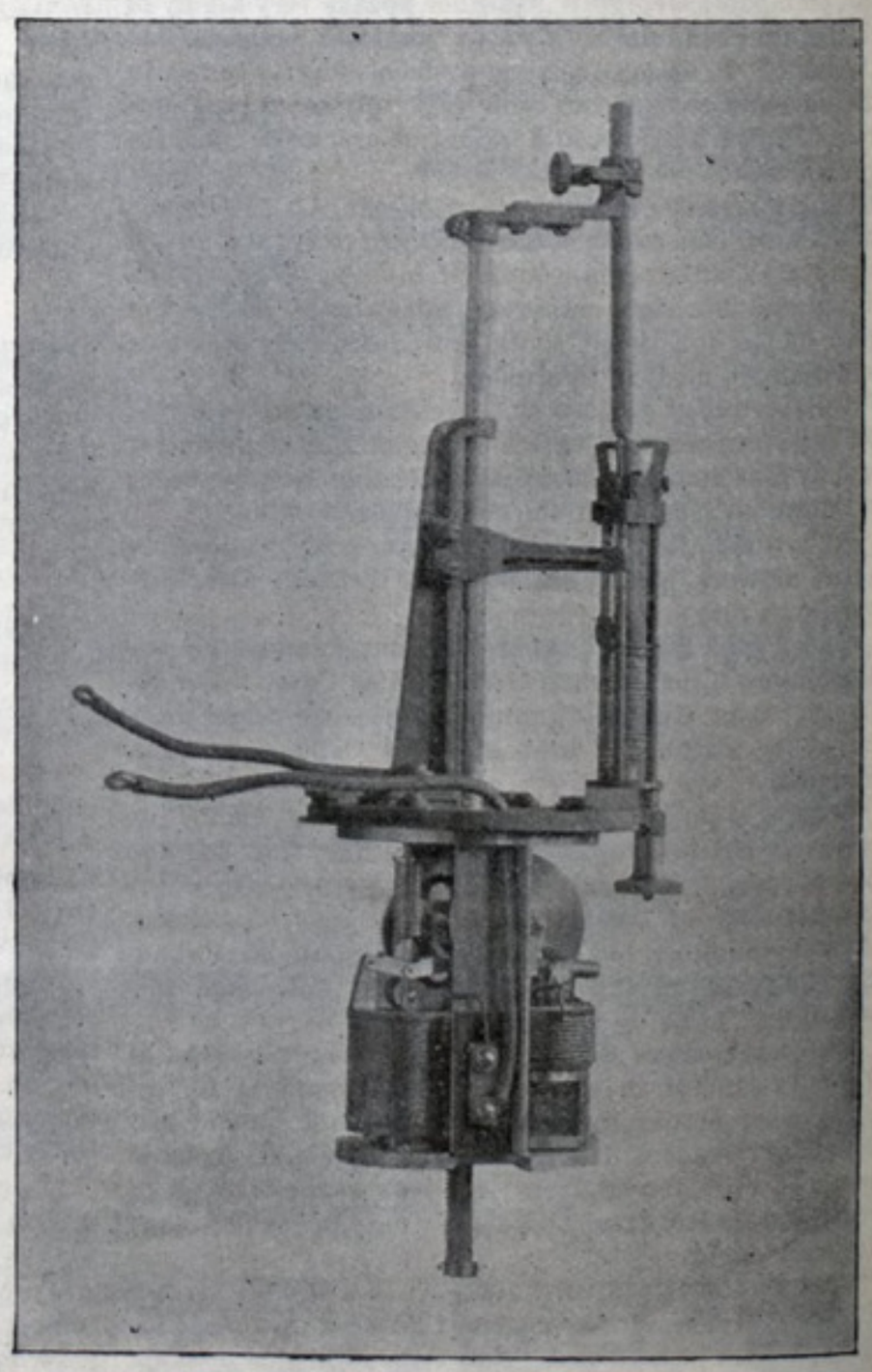
The drum is of iron and 18 inches in diameter. A highly polished silver plated parabolic reflector 17 inches in diameter, with 5 inch focus is mounted at one end of the drum on a finely threaded screw piece, by which it can be moved to or from the arc. By this means the light can be concentrated in a narrow beam or be widely diverged. The usual focus in projectors of this class is from 2 inches to 3 inches, and considerable advantage is derived by the increase in focus obtained in this projector. A fine hole is drilled through the screw piece on which the reflector is mounted, through which the exact position of the arc is shown on a small piece of ground glass.

The drum is provided with vertical and horizontal adjustments. The vertical adjustment is effected by means of a hand wheel operating a double threaded screw. It has a vertical movement of thirty degrees, 15 degrees above 15 degrees below the horizontal line, which is sufficient for ordinary purposes.

The horizontal adjustment permits a complete revolution of the drum upon its base, so that the light can be readily thrown toward any point of the compass. By means of a clamp screw the drum can be quickly fastened in any positi n.

Provision is made for a card attachment in order that the projector may be operated from a distance if preferred, as for instance from the pilot house, when the projector is set at the bow or any other part of a vessel.





The connecting terminals for the lamp are placed on opposite sides of the drum, the conductors can therefore be brought up in the form of spirals without risk of their "crossing."

The height of the projector is 48½ inches and the center of the reflector is 36 inches above the bottom of the base. The floor space required for the base is 22 inches in diameter.

This projector is simple, strong and substantial, and all the parts have been arranged with a view to secure efficient and easy operation. It is estimated that in clear weather the beam of light will have an effective range of 2,000 yards. The compactness of the entire apparatus renders it especially advantageous for use on vessels, wharfs, etc.

Notes.

PROPOSALS for new boilers for the U. S. steamer Michigan, now lying at Erie, Pa., is asked for, copies of the specifications may be obtained by writing the chief of the Bureau of Steam Engineering, Navy Department, Washington, D. C.

GENERAL JAMES A. DUMONT, supervising inspector general of the steamboat inspection service, has left for Europe on a well-earned vacation. Supervising Inspector George H. Starbuck will fill the duties of the inspector general's office until his return.

CAPT. W. E. RICE, owner of the propeller Rhoda Stewart, writing to H. G. Trout & Co., King Iron Works, Buffalo, N. Y., states that the Trout wheel recently put on his steamer has increased her speed a quarter of a mile per hour towing four barges and with less consumption of coal than formerly.

AT the yards of F. W. Wheeler & Co., Bay City., Mich., the two steel lightships, numbered 52 and 54, were successfully launched on Saturday afternoon. These vessels have been built to the order of the Lighthouse Board, Washington, D. C., two others are also under construction, making a fleet of four steel lightships for coast service.

THE excellent steam steering engines manufactured by Pawling and Harnischfeger, Milwaukee, Wis., and known as the Beck Steam Steerer, is receiving a wide attention from vessel men. The Vessel Owners' Towing Co., of Chicago, have just placed an order for a No. 3 and a No. 4 Beck Patent Steam Steering Gear with the above firm for use on Chicago River.

MR. FITHIAN'S Free Ship Bill, and the report that the Inman Line will build two ships in the United States, are causing considerable discussion in English shipping circles. In regard to the Inman Line, Clyde builders hold that building their vessels in America will add one-fourth to the cost, besides the extra expenditure for wages of officers, engineers, seamen and firemen.

BLACK & Co., opticians, Detroit, Mich., report an unusual large sale of marine glasses and barometers this spring. The firm keep constantly on hand the largest stock of optical and nautical instruments to be found on the lakes, and import goods direct from Europe. They are also fully equipped for the repairing of marine glasses, barometers, telescopes, the recharging of spirit compasses, and all similar work.

W. W. BATES, late Commissioner of Navigation, is writing a book on the shipping question that will, without doubt, eclipse anything yet published on that subject. There is no man in the United States that has given the matter of the protection of American ships in the foreign carrying trade as much careful study as Mr. Bates. Hence, his promised publication will be eagerly sought by those interested in this important industry.—"The Marine Journal."

IT is the intention, if possible, to arrange for a grand international regatta for both salt and fresh water yachts during the Exposition. Chicago has as fine a water front as any city in the world, and races could be easily held in sight of hundreds of thousands of spectators. Foreign yachts can reach Chicago by way of the Welland Canal without great difficulty. It is proposed to provide large prizes and make perfect arrangements so that yachtsmen will become deeply interested in the project. The Cleveland, O., yacht club and its founder, ex-Mayor George W. Gardner, are taking the lead in the matter.

LAUNCH OF THE CADILLAC.

The special tonnage which has been under construction at the Wyandotte yards of the Detroit Dry Dock Co., to the order of the Cleveland-Cliffs Iron Co., was completed and successfully launched on Saturday. This staunch built steamer is named the Cadillac, and will be used in the pig iron trade between Marquette, Mich., and Lake Erie ports, being specially designed and fitted for this work.

The Cadillac is a single decker. She will be provided with three steam cranes to be used in discharging cargo at places not supplied with hoists or other modern cargo handling facilities. These will unload her in six hours. Her engines will be triple expansion, with engines 20 x 32 x 54 inches in diameter by 42 inch stroke. Her two boilers will be 12 x 12 feet, and her furnaces will have forced draft. This is powerful machinery for a boat of the dimensions of the Cadillac, 225 feet keel, carrying 1200 gross tons on a 13½ feet draft, and her average speed is estimated by the builders to be 13½ miles per hour. The boat is expected to make two round trips per week between Marquette and Cleveland. Capt. A. E. White has been appointed master, and she will be ready for service early in June.

SALE OF THE CHICAGO SHIPYARD.

The entire plant of the Chicago Shipbuilding Co., the stock of which was largely held by the management of the Globe Iron Works Co., has been sold to Chicago men, among whom are Mr. Porter, of the Illinois Steel Co., Emmons Blaine, son of the Secretary of State, and W. M. Brown, of Pickands, Brown & Co. The consideration has not yet been made public. General Manager J. F. Pankhurst, of the Globe Iron Works, Cleveland, O., visited Chicago during the transfer.

Receipts of lumber last week amounted to 9,121,000 feet; of ore, 36,565 gross tons; shipments of coal, 13,066 tons.

A CANADIAN VIEW.

(*Continued from page six.*)

Immediatety the treaty was adopted. American vessels were accorded the privilege of using the Welland and St. Lawrence canals on the same terms as those applicable to Canadian vessels, although, of cousse, it is Canada and not the United States that meets the interest upon the outlay necessary to the construction of these expensive and necessary works. When the Americans were asked to pay the agreed price for this liberty, namely, the extention in Canada of equal privileges on the State canals, it was found that New York State had really opened its canals to Canadian barges.

A Canadian barge thereupon loaded with lumber for the Hudson, but when Whitehall was reached the United States customs authorities intervened and insisted that the barge be unloaded. The matter was referred to Washington, and it was there decided that the letter of the treaty had been sufficiently observed. The canals were open to Canadian vessels, but all such vessels using them had to remove their cargo, and at the first United States port they happened to touch.

If any Canadian vessel wished to take advantage of the treaty privileges of passing through the American canals, it must do so empty. This ruling, of course, nullified the arrangement. Canada had the right to use the State canals in theory, but not in practice. The authority which agreed to use its influence to secure this right actually stepped in to render it useless.

LOSS OF SPEED IN SHALLOW WATER.

Just what the amount of loss in speed was caused by vessels steaming in shoal water has never been every clearly defined, although it would no doubt depend greatly on the form of the hull below water and be different in almost very case. W. H. White, C. B., Director of Naval Construction and Assistant Contr ller of the British Navy, says that until very high speeds were aimed at, the question assumed small importance. Under present conditions it bears an altogether different position, and he cites a few instances showing actual trials. Two sister vessels of the torpedo gunboat type, of shallow draught, were run, one at half tide and one at tow tide, over the measured mile. The difference in depth of water on the two trials was about 9 feet on 42 feet. With the same power indicated one vessel attained 17 knots at low tide, and the other 17½ knots at half tide. Another vessel of the class was tried over the measured mile at high water and at low water; during one run she attained 17.8 knots at high tide, with about 2,800 horse power; at low tide she attained 16.9 knots, with about 2,600 horse power. Here, also, the loss in speed was fully half a knot in the shallower water, allowing for difference of power. The Edgar with 12 fathoms of water, required 13,260 horse power to attain 20½ knots. In water 30 fathoms deep she reached practically 21 knots, with 12,550 horse power. This represented a loss of about ¾ knot speed due to shallowness of water. Or, putting it in another way, in deep water the Edgar would attain 20½ knots with 1,500 horse power less than was required in the 12 fathom depth.

OF INTEREST TO NAVIGATORS.

The following is a copy of the bottle papers which will be distributed over the great lakes this season. It is not intended that the bottles should be picked up while floating, but on the bottles washing ashore they are to be broken, and inside will be found a franked envelope and form printed on specially prepared paper:

U. S. Department of Agriculture, Weather Bureau.

REPORT OF CURRENTS ON THE GREAT LAKES

To Vesselmen, Pilots and others:

To a certain the set and drift of lake currents, hitherto unknown, you are requested to exercise discretion in the floating of these "bottle papers," and carefully fill out the following form, as will the finder thereof also.

Thrown overboard by (give name, vessel, date, and position.)

.....

Found by (give name, post office address, date, and locality, also remarks, if any.)

.....

The finder will please forward this paper to the Chief of the Weather Bureau, U. S. Department of Agriculture, Washington, D. C., or deliver it, for transmission, to local Weather Bureau officials, U. S. postmasters, U. S. consuls, collector of customs, life-saving officials, members of the lighthouse department, or other reliable persons, who will please forward it without unnecessary delay.

MARK W. HARRINGTON,
Chief of Weather Bureau

TRIAL TRIP OF THE DOMINION FISHERIES CRUISER CONSTANCE.

The official trial trip of the new fisheries cruiser Constance, built by the Polson Iron Works Co., Owen Sound, Ont., for the Dominion Government was held last week.

The Polson Co. in their contract with the Government guaranteed to give a speed of 11 knots per hour and it is highly satisfactory to know that in her trial trip the Constance showed about 14 miles, a rate considerably in excess of that guaranteed. Engineer Michaud, who will be in charge when the vessel is officially accepted from the company's hands, affirms that the vessel will easily make 15 miles an hour after her machinery is a few weeks in use. Other tests were made, to show how quickly she could come about while running at full speed, and also how quickly she could be brought to a standstill by reversing while at full speed. Both tests were satisfactory in all respects and demonstrated the admirable qualities possessed by this staunch little craft. Capt. May says he expects to leave with his vessel for the St. Lawrence this week, where she will perform customs service. Mr. Parmelee and Commander Boulton, R. N. both expressed themselves as highly satisfied with the result of the test, thus echoing the opinions already given from every other quarter.

VESSELS SIDE-LIGHTS.

The International Maritime Conference which met at Washington, D. C., in 1889, passed resolutions to regulate the details of side-lights. The English Board of Trade have issued instructions relating to this feature and we find that the new regulations embody the experience of the past, and state the conditions in each case which are necessary to the proper fulfilment of the conditions as laid down by the Regulations for Preventing Collisions at Sea. Thus, for instance, the side-light is supposed to be so constructed and screened as to show a uniform and unbroken light over an arc of ten points, from right ahead to two points abaft the beam, and to be visible on a dark clear night at a distance of at least two miles. The instructions lay down the conditions which experience has shown are necessary to secure this object. It is explained, to begin with, that except in a minor point—the screening of the lights—the instructions are not intended to be retrospective; but it would appear that they will be enforced in the case of new vessels. While, however, it is stated that all that is really necessary is that the lamps shall comply with the conditions laid down in the regulations, details are given to guide those who have to judge of the question whether the lamps really do so comply. The minimum size of side lamps, nine inches back and sides, and eleven inches in height, are as before; but it is pointed out that a necessary condition of efficiency is, that the passages for the supply of air shall be ample, but yet so arranged, that the wind or motion of the vessel shall not cause the light to be extinguished or to smoke. The lantern also should be so constructed, that spray or broken water cannot enter it. It should also be so fitted, that it can be firmly attached to the screen, and that when so attached, it shall always be in its proper position. Regarding the lens, there are several important requirements. Its horizontal section should be of the shape of a circular arc of 120°, and the burner should be placed exactly at the center of the circle of which the lens is an arc. The height of the lens should not be less than the length of its radius. If the lens is plano convex or dioptric it must be so constructed as not to concentrate the light too much. A dioptric lens may be so constructed as to concentrate the light in a parallel beam, which is an advantage while the vessel has no list; but when she has a list, the light may all go down into the water or up into the clouds, through being so concentrated. It is now required that lenses are to be constructed to give only so much concentration as to secure that when the lantern is heeled 20° above or below the horizontal plane the light shall show at least one mile on a clear dark night. If, however, the lantern is hung in gimbals or on an oscillating screen, this condition is not to be insisted upon. Another point has regard to the construction of lenses. They are best if not colored throughout; the color should be obtained by a thin slip of colored glass inside a white lens. The color of lenses is in future to be tested by comparison with sample glasses, two of each color, one representing the maximum, the other the minimum of coloration allowable Lenses for any kind of lantern are not to have vertical corrugations in them, as these cut up and obstruct the light.

THE LAKE LEVELS.

Congressman Vincent A. Taylor, in advocating the passage of the 20-foot channel for the lakes, contained in the River and Harbor bill, presented the following argument:

"The Soo rapids form the dam at the foot of Lake Superior, and the only change proposed is the increased size of the lock, and as the flow of water from Lake Superior, as measured, is sufficient to fill that lock once in 17 seconds, I think that no danger to that lake need be apprehended. No change is proposed to the outlet to Lake Erie. Therefore, the only point which needs consideration is the outlets of Lakes Huron and Michigan—the Detroit and St. Clair rivers. It is proposed to dredge out the obstructions and to make a channel in these rivers 300 feet wide and 20 feet deep. Such a channel would carry 21,000 cubic feet of water per second. The flow of water in the river is 221,000 cubic feet per second, sufficient for eleven such channels. The data just given are from the records of the war department. As to the question of the rise and fall of the levels of these lakes and the effect thereon of deeper and wider channels, it is found, by records of the war department, that for many years past, these lakes have been subject to fluctuations in levels, and the periods of high and low water levels have not had any reference to river and harbor improvements. The lowest level of the two lakes, Huron and Michigan, occurred in the year 1847, and for the last 33 years the records show that there have been three marked periods of high water—1859, 1876 and 1886—and that while 1859 was the highest, the variation from that level was in the two succeeding periods less than one foot. Also, that within the same term of years, have occurred three periods of low water—1873, 1880 and 1891—and that the lowest of all these levels was that of 1873. In the last mentioned year the present improvement of the St. Clair river was begun. That improvement consisted in deepening the channel from 13 to 16 feet, and it was in the year that the waters began to rise. The channel was completed in 1874, and instead of draining the lakes as our friends would have us believe, the upward movement of the level continued until 1876—one of the marked periods of high water—two years after the completion of the improvement, surely long enough to have lowered the levels of these lakes if any such result was to ensue.

The Marine Record.

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THE MARINE RECORD is the only paper published in the marine interest in the United States which owns its own plant, employes its own compositors, issues its paper from its own advertised office, and it expects its gratulations from those who sympathize with its earnest endeavours to do them good in the marine interests.

THE difficulty which tonnage has experienced up till within a few days, from ice at the head of Lake Superior, goes to prove that little or no good results from trying to force the ice blockade on Lake Superior by vessels reaching the "Soo" earlier than May 1st. Notwithstanding the experiences of previous years, attempts are made to reach the head of the lake before the ice-king has let go his grip, and ice jamming and detention invariably follows.

EFFICIENCY OF THE CORPS OF ENGINEERS.

We have from time to time during the past fifteen years called attention to the general and marked efficiency of the Corps of Engineers, U. S. A., to whose discretion is given the conservancy of all waters within the Federal jurisdiction.

It is with pleasure we note the unbiased ruling of this splendid and highly trained Corps in all matters placed in their charge affecting the maritime interests of the internal commerce of the U. S. and the adoption of their reports by Congress in the River and Harbor Bill just passed goes far to verify and uphold the elevated opinion in which the country at large holds this estimable branch of the Federal Government.

There will naturally be some divergence of opinion in matters affecting large circles of commerce and the verdicts of the Corps of Engineers have from time to time been severely criticised, yet, the ultimate results have always proved that the trained judgment of the incomparable staff have always been based on correct principles and a national economic standpoint of engineering.

In commenting upon the River and Harbor improvements, brought about primarily through the recommendations of the Engineer Corps, the Great Lakes furnish ample ground for the highest encomiums which can be given to even so important a branch of the public service as the U. S. Corps of Engineers, and in this connection, we point with pride to the fair and unbiased judgment recently rendered by a committee of the Corps on the Duluth bridge question, without doubt the Nation could ill afford to place a gate across the entrance to the two ports at "the head of the lakes" and such has been the experience on the lakes regarding bridges, with this feature in view, the decision of the investigating committee is eminently just, and Gen. Thomas L. Casey, Chief of Engineers, will no doubt sustain the judgment in every particular, and it is hoped this efficient Chief of Engineers, will, when any other bridge scheme comes to light, appoint a competent committee to make the necessary investigation and never allow projects to benefit the few at the expense of the country or in any way to interfere or obstruct the great harbors at the head of Lake Superior, which in the opinion of well advised authorities will eventually become the emporium of the North-west and the greatest shipping and receiving point on earth. Only a decade ago, or in 1880, 200,000 tons represented the freight at the head of Lake Superior, in 1891 about 4,000,000 tons were handled, and judging from the steady and continuous development in the North-west there can be little doubt but that the present tonnage will double itself within the next five years, and men of acumen go so far as to state that 20,000,000 tons will represent the freight record at the head of Lake Superior within the next decade, nor can such an estimate be termed an exaggerated one if we view the future progress in the light of the present experience of Lake Superior commerce.

MUTUAL MARINE INSURANCE.

The recent report of the committee of lake vessel owners on mutual insurance was a most favorable one, and the organization stands ready for perfecting at an early date.

It is now some three years since The RECORD last endeavored to press on vessel owners the advisability of mutually insuring their interests. The matter then created some discussion, but for some reason, which we confess we cannot explain, owners, though individually approving of all The RECORD advanced on the subject, were apathetic, and the question was laid aside for a more convenient season.

What was then advisable seems to be now deepening into a necessity, and it would appear that the subject would have to be definitely grappled with in the near future. The RECORD has for several years past on suitable occasions, pressed the matter of mutual marine insurance, believing that the system might be adopted with satisfaction to owners of lake vessel property.

The report of the committee, which we have previously alluded to, evidences a feeling on the part of owners to consider a feasible plan to relieve themselves from the illiberal treatment accorded by the established companies, and some plan co-efficient and reliable with the mutual insurance ought to be promulgated.

If the office system of a mutual insurance association is desirable, The RECORD is in a position to procure the details regarding the practical workings, the years that have gone by but proves the methods of this special feature abroad and to which we have given a more than ordinary attention.

Let us place this question fairly before the minds and intelligence of lake vessel owners, and in the premises we would first ask if relief can be found from establishing a mutual insurance company made up exclusively of vessel owners? If this is answered in the affirmative, we point out the enormous labor devolving upon an organization of this kind, embracing, as it does, so much work of an intricate nature, which, with all deference to the vessel owners, they are not very familiar with.

There seems to us to be presented in the committee's report a feature which must creep in, viz—undesirable risks. The committee who admits this risk in the plan do not look far enough ahead, yet, these risks are so intermingled with good risks, that a connoisseur would be puzzled to know when to rule out the class of undesirable risks and debar the owner from the chance of insuring, thereby leaving the established companies to take the leavings of the mutual system. Let it be acknowledged that it must be all or nothing. Can some other plan be devised to overcome the undesirable risk, and yet be in harmony with the workings of a mutual plan, at the same time utilizing old companies? A shrewd insurance agent might, perhaps, evolve such a system. One agent of note suggests that owners deal direct with the home offices, thus saving all commissions, and this would be somewhat on the plan of the English Lloyds in vogue on these waters. Another idea is to combine the present companies under one management, placing the present managers under a salary, which is an approximation to the mutual plan. These ideas may not be feasible, yet they go to show that owners and local agents are trying to evolve some way of reducing the cost of insurance without reducing the net results.

However the plans may result, we do not take upon ourselves to predict, but, it is plainly to be seen, that the companies who have lately taken a more active and personal interest in lake matters, will be quick to see the present needs of the lake marine and embrace one or other of the plans presented by taking the initiative. Still, if owners desire to realize good results, they can no longer let these matters rest, and to show their good faith in the action taken by their committee, they should go ahead on the question of mutual mariue insurance.

In referring to the committee appointed on mutual insurance, we go further, and say that they are men of ability, with more than ordinary experience in lake underwriting, and they should not desist from their labors, but so amend their reports where considered advisable that the system advocated may be an inclusive and feasible one, and what the present situation demands.

We do not take upon ourselves the position of advising others on this question, yet, it occurs to us that owners might demonstrate to the satisfaction of some of the insurance companies that a combining of the mutual insurance system with the issuing of policies with regular companies would be a practical solution of the problem now before us. In other words, make the owner a participant in the profits of the hull insurance, his dividend to apply as a part payment of the premiums on his next year's policy.

There are, of course, other ways of solving the problem, and we will be pleased to offer our suggestions to owners, from time to time, and we are firmly convinced that a more stable and economical basis of marine insurance may be obtained if the necessary energy and vigilance is brought to properly bear on this question.

NOTICE TO MARINERS.

The fog signal at South Manitou, Lake Michigan, is reported as disabled. Masters of vessels are cautioned that the signal will not be sounded in thick weather until repairs are made, which are now under way.

Notice will be given when the signal is again ready for use.

By Order of Light House Board, Nicoll Ludlow, Commodore, U. S. N., Inspector Ninth L. H. District, Chicago, Ill., May 10 th., 1892.

THE RIVER AND HARBOR BILL PASSED.

Notwithstanding the best efforts of a certain clique, having the watchword "retrenchment" nailed to the mast, and the further bugbear of drying up the lakes by dredging a twenty-foot channel, the River and Harbor Bill has passed the House and it is considered certain of passing the Senate.

The bill was ably engineered by Mr. Blanchard of Louisiana, chairman of the river and harbor committee of the House and his extended trip over the Great Lakes last summer had, no doubt, an influence on his championing lake improvements including the twenty-foot channel. Congressmen Vincent A. Taylor and Tom L. Johnson were active in their hearty support of the bill, and Colonel Haynes of Fremont, O., as a member of the river and harbor committee, stuck closely to the demands of the lakes. The bill carries with it an appropriation of $21,000,000 and provides for an expenditure under the contract system of $26,000,000, making a total of $47,000,000. The contract system provides for a continuance of work until the completion of the special improvement, and is an economical and well considered measure.

Although the total amount is large, the national finances could not be turned to a better account than in giving these increased facilities to commerce, and permitting a wide-spread development of the nation's resources.

LAKE FREIGHTS.

Vessel owners appear to have all reached the conclusion, from harsh experience, that there is no money in 40c. coal to the head of Lake Superior with the present depth of water at the St. Mary's canal lock, and it appears to have been tacitly agreed by them to carry no more up cargoes at less than half a dollar, except where absolutely necessary for ballast.

The owners have in many cases instructed brokers to this effect, but the coal men are inclined to fight such a decided increase in the rate.

About all the grain capacity has been taken that can load at Duluth this week, and shippers are offering, for next week, something a little lower than the spot rate. This difference, however, is not more than the storage rate for the fifteen days beginning next Sunday.

Lumber rates on the lakes are strong, and in some instances higher, Lake Superior shipments, both to Chicago and Lake Erie, are steadily moving.

The nominal rate on ore from Ashland is $1.15, and scarcely anything is doing. The Escanaba rate stays at 75c., with a fair amount of wild tonnage being taken.

THE GOODRICH LINE.

In no department of the lake marine has there been so marked an evolution as in the passenger carrying line, and in no particular instance is this more manifest than in the reorganized Goodrich Transportation Co. The Goodrich line today stands by long odds at the head of the Lake Michigan passenger carrying business. The fleet which this season will fly the house flag of the firm, the best equipped, most elegantly appointed, and strictly disciplined on the chain of lakes, as well as the most extensive afloat on fresh water. The line consists of nine steamers as follows: Twin screw steel steamer Virginia, Atlanta, Indiana, City of Racine, Menominee, City of Ludington, Chicago, Muskegon, Sheboygan.

The fleet engaged in Cleveland's traffic has been a steadily increasing one. In 1880 it numbered 175 vessels, with a tonnage of 64,287 tons; by 1885 this had risen to 183, with a carrying capacity of 92,641 tons; and when the inquiry for the Census Bureau was made to ascertain the figures for 1889, it was found that the number had risen to 241, and the tonnage to 176,804 tons. This last mentioned fleet included 133 steamers representing a tonnage of 119,969 tons, and a value of $7,579,500; and 67 sailing vessels with a tonnage of 30,956 tons, and a value of $871,300, while in its traffic operations the fleet earned $4,344,697, and paid out $3,441,929. It is worthy of note that during the year no fewer than 5,312 men received employment in the working of Cleveland's commercial flotilla, and that to this force there was paid out no less than $875,722 in wages.

Lake underwriters have been requested by the new Lake Carriers' Association to bear part of the burden for the maintenance of private lights in Detroit and St. Clair rivers. The cost of the lights for the season will be $6,500, and it is thought the underwriters will cheerfully bear a part of the burden until Congress takes over the keep up of these absolute requirements to safe navigation in the commerce of the North-west.

A Bill has been reported in the House asking for an appropriation of $25,000 for the erection of a monument at Put-in Bay, Ohio, commemorative of Commodore Oliver Hazard Perry and those who were with him in the battle of Lake Erie.

(*Continued from page five.*)

Manager Bullard, of the Union Steamboat Co., arrived home last Saturday from a trip to New York.

Parrish & Co., report a very good business since the re-opening of their ship-chandlery. The popularity of this firm should bring many new, as well as old customers into business relations with them.

The new Anchor Line monitor steamer Codorus, will not go into the water this week. Tuesday her bottom was subjected to hydraulic pressure to discover leaks, but none were found.

The persistency of the hard coal shippers in holding back production and offering the low rates they have, has had the effect of sending a large fleet of boats to Ohio ports, where better rates are obtained. The movement of hard coal from here for the first of this month has been very small. Rates continue firm at 40 cents to Chicago and Milwaukee. while Duluth, Toledo and Detroit are steady at 25 cents.

The guards of the steamer William Harrison had to take off 14 inches on each side to allow of her passage through the Canadian canals.

Capt. Eber Ward has chartered the steamer Northerner, and taken her to Ogdensburg. He is after more boats to put in the line it is said he intends establishing between Lake Superior and Ogdensburg. The Northerner was given a very thorough overhauling during the winter.

But little is doing in canal transportation. Rates have gone down to 3½ cents on wheat to New York, but the railroads are working might and main to get the bulk of the business, and are succeeding.

Sunday and Monday saw a large Lake Superior fleet in port. The customs house reports for those two days show receipts of 1,800,000 bushels of grain. PARKE.

BAY CITY, MICH.

Special Correspondence to The Marine Record.

The barge Turner was in the dry dock the past week. She was thoroughly recalked and received a new stern post and rudder. The barge Ketchum is in dry dock for recalking.

Capt. James Reid's recent purchase, the tug Parker, is to receive a new boiler and deck house.

The machinery of the tug Winslow of the Saginaw Bay Transportation Co. is being generally overhauled. The new tug belonging to the same company reached port in tow of the Charleton. A complete outfit of machinery is being built by the Marine Iron Co. for her

The steamer Metropolis broke several buckets off her wheels and is now having repairs done.

The big tug Seagull succeeded in releasing the car ferry St. Ignace, ashore at Mackinaw City.

Light Ships No's 52 and 54 were successfully launched at Wheeler & Co.'s yard, Saturday afternoon. No. 52 will be known as the Fenwick Shoal Light Vessel, and when completed will be delivered at the buoy depot at Edgemore, in the Delaware River. She will be stationed off the Fenwick Island Shoal. No 54 will be known as Martins Industry Light Vessel and will be located in the sixth lighthouse district off Port Royal entrance, outside of Martins Industry Shoals, South Carolina, about 15 miles eastward from Tybee Light. After the launch, Wheeler & Co. gave a banquet in honor of Commander Heyerman, of the eleventh lighthouse district, under whose supervision the boats were built. J. P. R.

TORONTO, ONT.

Special Correspondence to The Marine Record.

The propeller Shicklina, Capt. O. Jackson, with the schooner St. Louis, left last week for Ashtabula to load coal for Mackays Harbor. These were the last of the fleet wintering here.

Messrs. Mackays Sons, of Hamilton, have purchased the propeller Acadia, from Capt. S. Malcolmson, to take the place of the Celtic.

The propeller Niagara, Capt. James Morgan, arrived here with coal from Oswego and cleared light for Chicago to load grain for Kingston. The steamer Cibola arrived here from Kingston after having been on the dry dock there, and will commence her season's business on the 16th inst. The propeller Persia, Capt. John H. Scott, arrived on Sunday from Montreal on her first trip this season, she was on Shicklina's dry dock at St. Catharines all winter and had a very thorough overhauling, so that she is in excellent shape, her cabin and staterooms have been very handsomely painted and decorated and every department of the vessel is in first class order for business. The propellers Cuba and Alma Munro arrived from Montreal with merchandise, and are both looking well in their cabins and outside appearance. The Cuba cleared for Chicago and the Alma Munro for Hamilton, and after discharging there, returned here and loaded grain for Montreal.

Mr. G. E. Jaques, the well-known forwarder of Montreal, was a passenger on the Cuba for Chicago. He has been in such poor health lately that he has been compelled to give up business for a time, but his many friends trust that it will be but for a short time, and that he will soon be able to get into harness again.

Capt. W. H. Goodfellow, compass adjuster, has been very busy of late attending to the adjusting of steamers' compasses at Collingwood, Owen Sound and Toronto. He left for St. Catharines by the Persia, and after adjusting her compasses will attend to several steamers passing through the canal.

The tug St. George had a very rough experience last week. She left Toronto for Hamilton with a boarding scow and two dump scows in tow belonging to Mr. McNamee, who has the contract for dredging the harbor at Hamilton. It was blowing fresh when they left here, and before reaching Hamilton the wind increased very considerably, so that the scows broke loose and the fires of the tug were almost drowned out with the seas, but after considerable difficulty the piers at Burlington Beach were safely reached.

The assistant engineer of the tug Oneping and two other men had a very narrow escape from drowning last week. They had gone out for a sail on the lake, and when about a mile outside the Island a sudden squall struck them and capsized their craft. Fortunately the steamer Lakeside hove in sight and rescued them. Two of the men were hauled aboard by ropes thrown to them, but the third was so exhausted with the cold water that a boat had to be lowered to save him. Capt. John Miller, U. S. Special Inspector, was aboard the Lakeside at the time, and from his remarks after landing, he appeared well pleased with the manner in which the men were rescued, and the way in which the crew were drilled in handling the small boat.

The crew of the lost propeller Celtic arrived home last week, and had quite an exciting story to tell. When the Russia collided with her, she cut a hole in her starboard bow about eight feet deep. The two vessels remained together for about two minutes, and all but three of the Celtic's crew climbed aboard the Russia. The mess-room boy, a fireman and the cook remained on board. The boy put on a life preserver and jumped overboard, and was rescued by the Russia's crew; the fireman was also picked up by them, but the cook had gone to her room for her clothing and was not seen after the vessels parted. The mate of the Celtic, who was on watch at the time of the collision, says that he kept the whistle blowing every two or three minutes and did not hear anything of the Russia until she was into them.

To Mr. Norman B. Dick, of this city, is due the credit of having built a yacht that is expected to eclipse, in speed, anything in the 40-foot class on the lakes. The Zelma, as the new yacht is called, was built during the past winter, and launched last Saturday. She is from designs drawn by Mr. William Fife, and his instructions were to furnish the working model and specifications of a yacht that would prove faster than his other famous creation, the Oswego cutter Yama. Her construction throughout is of the very best material and workmanship. The entire skeleton of the yacht was constructed in Mr. Fife's own yard at Fairlie, Scotland, under his own personal supervision. Her dimensions are as follows: Length over all, 55 ft. 6 in.; load water line, 37 ft.; beam, 10 ft. 7 in.; draught, 8 ft. 8 in. All her gear is imported and of the very best quality and neatest fit. It is expected that her trial trip will take place on Saturday, and that during the season she will create considerable excitement in yaching circles

SPARTA.

KINGSTON SAILING DIRECTIONS.

Special Correspondence to The Marine Record.

KINGSTON, ONT.—The steamer William Harrison, of Boston, was in port this week bound to Buffalo, where she is to be employed in the excursion business. She is a side-wheel upper cabin steamer built in 1865, and looks a speedy boat. In order to get her up through the St. Lawrence canals the wale strakes had to be removed from each guard, and the pilot reports that even then it was very tight squeezing in some of the locks. The steamer measured 44 feet 8 inches in the widest part, and owners of vessel property using the St. Lawrence canals can depend on this being the utmost width that can be locked through. Capt. Campau, of Buffalo, was in charge of the Harrison.

When coming into the harbor this week the steamer Argonaut grounded abreast of Folger Bro,'s dock, and remained fast until lightened off by the floating elevator. While this steamer was aground the Algonquin, with the same draft of water came along past her and reached the dock first. As a great many strangers navigate this harbor during the summer season, and as the water is at present very low, it might be of interest if your correspondent was to give mariners a few sailing directions, which, if followed, will guarantee a safe passage (to any steamer not drawing over sixteen feet) from Lake Ontario to the Montreal Transportation Co.'s docks. After passing Snake Island Light, leaving it on the port hand, the vessel should be headed for Murney Tower, the southernmost point of the Harbor dock line. Passing down on this course, Penitentiary Shoal will be left on the port, and the Myles Shoal on the starboard side, each of them being marked by a platform buoy. Keeping close along the docks Carruther's Shoal, with six spar buoys on it, will be left to starboard, and the Martello Tower to port. Just abreast of the Martello Tower, the Point Frederick Shoal, with seven spar buoys on it, will be left close aboard to starboard, and the deepest water will be found by keeping within fifty feet of the buoys on the northwest of this shoal, leaving them, of course, on the starboard side, and not attempting to haul in for the Forwarding Co.'s dock until well abreast of it. The towers for the range lights are now being constructed, and when these lights are in place mariners will be able to range them shortly after passing Snake Island Light, and following on this range, the course will lead them just as above described.

The steamer "Constance," of the Fishing Protection service, is bound down from Owen Sound to the Gulf of St. Lawrence, and will be piloted to Montreal by Captain George Batten. Captain Batten had the honor of piloting the Mackinaw and Keweenaw down; each steamer in two sections, and is considered one of the most careful pilots in this locality. On the 16th Capt. Batten leaves for New York to take charge of the new steamer Columbia for the Richelieu and Ontario Navigation Co.

The Glengarry and consorts have had another shaking up on Lake Superior. On Thursday night they left Fort William laden with wheat for Kingston, and when twenty miles outside Passage Island both vessels broke adrift in a heavy snow storm, the Glengarry returning to Fort William. Saturday the Glengarry left the latter port to search for her tow, and found the Gaskin in Peck's Harbor, but on returning to Fort William Captain McMaugh reported that he could not find anything of the Glenora, excepting her broken main boom. On Monday a dispatch came to the owners informing them that the Glenora had turned up outside of Duluth harbor, and it is to be hoped that this tow will reach home without any further casualty.

The Donnelly Salvage and Wrecking Co. did a pretty lively job of wrecking this week, in the raising of the schooner A. G. Ryan out of twenty feet of water. They started to work Thursday morning, and although their divers had to dig through five feet of clay, they had three chains under the wreck by Thursday night, and Friday night by 6 p. m. the vessel was delivered alongside the dock in Deseronto, This firm will at once commence work on the steamer Rothesay, sunk near Prescott, they having bought the steamer from the underwriters.

On Saturday afternoon Thomas McCammon, baker at the asylum, went out for a sail in a small skiff, and capsized off Baker's Point. He shouted for help, and was rescued by Messrs. Graham and McIvor, who heard his cries, but having been nearly two hours in the water, was almost exhausted when brought to shore, and has been very ill since.

The water in the Bay of Quinte is lower now than ever before known, and at Trenton on Wednesday the steamer Verona grounded in the centre of the channel.

A large raft belonging to Calvin & Son grounded on Crab Island on Sunday, and suffered considerable damage before it was released, and the Collinsby Rafting Co. had one of their rafts ashore in the Cedar rapids.

Capt. Patinaude, of the Celtic, will act as mate of the propeller Acadia for the balance of the season, A. & D. Mackay's Sons having purchased the Acadia for $20,000 to replace the Celtic.

The water in the Morrisburg Canal is less than 8 feet deep, and many of the upbound steamers find a great deal of difficulty in getting through. MAGNET.

ESCANABA, MICH.

Special Correspondence to The Marine Record.

The steamer City of Grand Rapids, of Hannah, Lay & Co.'s line, called here on Sunday last, with Hon. Perry Hannah, the managing owner, aboard. THE MARINE RECORD man was invited to accompany the party, and, together with Captain Taylor, of the steamer Nellie, took a run to Gladstone, where preparatory arrangements were effected, so that the boat, we are informed, will at once commence running on the route between Traverse City and Escanaba and Gladstone.

It is not improbable that a daily line of boats on this route will soon be established. The Grand Rapids has received some extensive repairs at Grand Haven the past winter, and with her fine appearance, Capt. Franklin and the owners can justly feel proud.

The ore trimmers from No. 5 dock were given a very warm reception here last Saturday by the Trimmers' Union of Escanaba. The trouble, as explained to us, was that the No. 5 gang had contracted to trim a craft here at three cents per ton, while the Union's price is four cents, and on the arrival of the former the music commenced, which resulted in the serious shooting of one man and severe clubbing of several others. From the manner in which clubs and picks were handled, I should think it purely accidental that no one was killed.

The little steamer Truscott cannot be traced back to a clean record, so as to establish the ownership, but that is not sufficient hindrance to keep the genial Bartley from raising her from her berth on the bottom of No. 2 slip. She's afloat now at any rate.

Hello, Central? Hello! Who's this?

City Clerk—Say, give me Paul Kelly, please.

Hello! Hello, Paul! The city council instructs me to order a small keg of your nitro-glycerine (?) delivered on board of the schooner Duncan City before she "goes up." Can you do so? Yes. All right. Just charge it to the Harbor master's account. Good-bye.

The derelict should go back to her old berth on Summer Island, then we can go ahead and build our dry dock where she now lies. Who takes the initiative? UNO.

FLOTSAM, JETSAM AND LAGAN.

One of Reid's wrecking outfits is about to begin work on the schooner Golden Fleece, which stranded at Dunkirk in the fall of 1890.

The steamer Barnum, which had been ashore on Hare Island, arrived at Port Arthur Sunday morning, after jettisoning 300 tons of coal. She was also leaking badly.

The steamer Alberta broke the buckets off her propeller in last Friday's snowstorm off Isle Royal, and lay at anchor for two days until picked up by the Athabasca. William Rixon, second mate, was washed overboard and drowned.

"Wheat receipts at Duluth and Superior, from August 1 to May 1, were 43,943,729 bushels, or 30,000,000 more than for the corresponding period last year."

"The Steel Company has commenced shipping plates for for shipbuilding to the Pacific Coast branch of the American Steel Barge Company, at Everett, Washington. It takes just six days to arrive there from this point."

"Between 6,000,000 and 7,000,000 bush of wheat at the head of Lake Superior changed handson Monday of last week, most of it being intended for May shipment. This is the greatest record ever made by any wheat market. The April report shows that the flour production was 63,992 bbls. and receipts 92,052. Of wheat there were received $4,617,479 bushels, as against only 1,455,734, one year ago. The flour shipments footed up 84,766 barrels, as against 38,835 in 1891, and the wheat shipments 3,669,844 bushels, as against 354,044. Flax receipts were 26,415 bushels and shipments 110,880. This is by all odds the greatest April the docks and elevators at the head of the lakes have ever seen."

ad notes

J. J. Hill, the railroad king of the Northwest said in a public speech two years ago:

"The engineers of the United States are engaged upon a project by which to give us 20 feet of water through the Lakes, We shall take the 20 feet of water when it comes, and make good use of it, but I will say to you that whenever they will guarantee me 18 feet of water I shall build vessels which will carry 6,800 tons instead of 3,000, and I shall cut the present cost of water transportation square in two."

Maritime Law.

ircuit Court of Appeals, Seventh Circuit. March 8, 1892.

Maritime Liens—Services—Damage for Torts—Priority. A maritime lien for damages arising from a collision caused by negligent navigation has precedence over the lien of the crew of the offending vessel for wages earned by them on board such vessel before the collision, but is subordinate to the ien for such wages earned after the collision. On appeal from the District Court of the United States for the Northern District of Illinois.

Before Gresham, Circuit Judge, and Jenkins, District Judge.

The record presents for consideration the single question whether a maritime lien arising out of damage done in a collision caused by negligent navigation should be subordinated, with respect to its payment, to the maritime lien of the crew of the offending vessel for wages earned by them on board of such vessel. It is undoubted, as a general rule, that, as against claims arising *ex contractu*, the claim for seamen's wages is preferred. This is stated to arise out of the needed protection extended by the admiralty to a class of men improvident, reckless, and exposed to imposition, and also because, "by his labor the common pledge for the debts is preserved." The latter reason is perhaps the better foundation for the rule. Possibly, also, the reason of the rule may, in part, be found in the nature of the service, and in the encouragement supposed thereby to be held out to the crew to "stand by the ship" in all times of peril. Upon whatever foundation it may rest, the rule is not without its exceptions. Thus salvors are awarded priority over wages earned prior to the salvage service, and this upon the equitable consideration that the subsequent service has preserved the subject of the lien. The Selina; 2 Notes Cas. Adm. & Ecc. 18; The Athenian, 3 Fed. Rep. 248.

The contention that wages should be postponed in the payment of damages by collision is rested upon two grounds; First, that the seamen share in the fault of the offending vessel, and from considerations of public policy to discourage negligent navigation; Second, that it would be inequitable to permit a fund impounded to compensate a wrong to be diverted to the payment of a participant n that wrong, or to one having a remedy against the owner of the offending vessel denied to the owner of the injured vessel.

We are of opinion that the contention is well sustained. The negligent navigation causing collision and consequent injury was the act of the crew, or of some one or more of them. The negligent act or omission is, in the law, charged upon the vessel so negligently navigated. She is treated as the offending thing. The fault of the crew is visited upon the agent by which the fault became effective, causing injury. It is an instance of imputed guilt, the sin of the crew being attributed to the innocent instrument. So, also, we think that, as to the injured vessel, the crew should share in the fault imputed to the offending vessel. As to the injured vessel, the offending thing and her crew are one. The crew participate in the navigation of the ship. She is the passive instrument of their active co-operation in effecting the injury. Ship and crew constitute the common enemy that has worked destruction. There may be but one directing mind. The others are, however, like the ship, his instruments in the perpetration of the wrong, and, as to the injured vessel, participants in the fault. They are joint trot-feasors. Which one, *inter se*, was directly and immediately responsible for the negligent act or negligent omission is of no moment to the vessel injured through their co-operation. We think it opposed to every principle of natural justice to permit one or more of an offending crew to hold priority over a claim for damages caused, directly or indirectly, by their act, and in the course of a common employment. That would be to reward guilt at the expense of innocence, and to tender premium to negligence. Careful navigation is essential to safety. It should be the constant care of courts of admiralty that no license be given to conduct prejudical to life or property; that no safeguard to prudent navigation be removed; that no immunity be offered to negligent conduct. With the greatest care, navigation is hazardous. Seamen will not be less vigilant in the performance of duty if, as against the injured and the fund created to compensate the wrong, they are held sponsors for the crew. They will not be less careful if the *res* charged with the payment of their wages be first subjected to the payment of the injury their fault had occasioned. The wrong done arose from the *delictum* of either the master or crew of the vessel at fault, and should be first compensated. This conclusion, as it seems to us, rests upon and finds support in the highest considerations of public policy. A fund already insufficient to compensate the injury should not be diverted to compensate those who actively, or by inference of law, have occasioned or contributed to the wrong. It is essential to the safety of commerce upon the seas to punish negligent navigation, and to redress the consequent ujury, that others may not be encouraged to breach of duty. Careless navigation, reckless conduct of master and crew, avoidable collision, will be less frequent if punishment, not reward, shall surely follow transgression. We hold, therefore, that in cases of pure tort, as to precedent wages, the damage claimant has priority, and that wages earned since the collision have precedence over the claim for damage by collision. The decree appealed from will be reversed, and the cause remanded for further proceedings in conformity to this opinion.

STEAMBOAT INSPECTORS' DECISIONS.

There must certainly be "a hole in the skimmer" to allow steamboat inspection rules to percolate in the freest possible manner. Local inspectors' rule according to their light, and when a well backed antagonism develops, the supervising inspector of the district reverses the decision so as to make all interests round up. This feature does not seem to have worked as well as ordinarily in the case of the Booth Fish Co., who, on finding their steamer Dixon condemned for passenger service by the local inspectors at Manitowoc, Wis., took the vessel away from that port, had her capabilities ruled upon by the supervising inspector of the district, and the license granted to carry passengers. Mr. Booth is now reported as intending to sue the local inspectors of Milwaukee for damages occasioned by their apparent incompetent ruling, thereby detaining and causing extra expense to the vessel. In minor cases, as also in the issuing of officers' certificates, or licenses, the decisions of the local inspectors, although often questioned in the past, have been usually accepted as final, an appeal to the head of the district involving much additional trouble and time. The Booth Packing Company, however, seem not to be satisfied at securing a license for the Dixon, but they also desire to be recompensed for their time and trouble in securing what they believe they were justly entitled to in the first place.

THE E. M. B. A.

The Shipmasters Excelsior Marine Benevolent Association now numbers ten lodges on the lakes, Capt. Alex. Clark, Buffalo, is grand president; Capt. Lyman Hunt, Buffalo, grand treasurer, and Capt. W. A. Collier, Cleveland, grand financial secretary.

The lodges and membership are as follows: Buffalo, No. 1, Sec., W. E. Clark, 367 Clinton street, 170 members; Port Huron, No. 2, Sec., W. A. Ashley, 928 Erie street, 115 members; Chicago, No. 3, Sec., T. B. Higgie, 1070 W. Van Buren street, 115 members; Cleveland, No. 4, Sec., C. E. Benham, Perry-Payne Building, 180 members; Bay City, No. 5, Sec., C. H. Weeks, Bay City, 55 members; Milwaukee, No. 6, Sec., John McSweeny, 459 Maryland avenue, 75 members; Detroit, No. 7, Sec., W. E. Campbell, 551 Cass avenue, 140 members; Marine City, No. 8, Sec., W. H. Scott, Marine City, 28 members; Toledo, No. 9, Sec., C. H. Hubbard, Toledo, O., 30 members. Total, 908 members. Only those masters who hold steamboat licenses are eligible for membership, and it is widely admitted that the E. M. B. A. is now the most representative organization of masters ever enrolled under the banner of any association.

STANDARD TECHNICAL BOOKS.

	Regular Retail Price.	With The Marin Record one Year
Beeson's Inland Marine Guide	$1.00	$2.50
Law of Bills of Lading	5.00	6.50
Patterson's Nautical Dictionary	5.00	6.50
Drawing & Rough Sketching for Engineers by James Donaldson	2.50	4.00
Scott's Coast Pilot (new edition)	2 00	3.50
Simple Elements of Navigation	2.00	3.50
"Wrinkles" in Practical Navigation	6.00	7.50
Practical Seamanship	7.50	8.00
Thurston's Manual of the Steam Engine, part 1	7.50	9.00
Thurston's Manual of the Steamer Engine, part 2	7.50	9.00

A REGISTRY OF SEAMEN.

The Bureau of Navigation, Washington, D. C., have in view the compiling of a complete registry of American seamen.

The registry is designed to show the average character, qualifications, and capabilities of the seamen. Being kept at each port, it is also expected to indicate the number of men engaged or employed, and those registered as desiring employment, and thus show the maritime interests of the ports and the condition of the industry as evidenced by the records, and general or special rates of wages paid in each trade or class of vessel. It would also show the nationality of the seamen, and whether naturalized. It is thought the current report would prove valuable to owners in pointing out those ports where seamen were on hand ready for shipping, as also where a scarcity of seamen obtained.

FOREIGN BUILT SHIPS TO BE GIVEN A UNITED STATES REGISTRY.

The thin edge of the wedge has been entered and the Liverpool steamers City of Paris and City of New York are to be admitted as American ships in the annals of American tonnage.

Specious arguments have gained the day and all half hearted ignorant dupes have dropped into line, even marine papers and questionable sources admit that perhaps it is best to receive some pap from this direction.

The favorable report of the Senate Committe on Commerce upon the bill to admit two of the Inman Line steamers to American registry presages the enactment of the measure which is derogatory to the best interests of American shipbuilding and virtually acknowledges defeat in the line of work at which our western shipbuilders admit of no compeers the world over. If Americans were so mean hearted as to allow their capital to support the British flag and receive their postal subsidies and naval reserve emoluments they should be looked upon with shame and their contumacious conduct allowed to be continued. The effect of such a bill will be to bring under the American flag two great Transatlantic Liners, the City of New York and the City of Paris, both of over 10,000 tons burden, upon the condition that the same steamship company build two other vessels of equal power and capacity at American yards.

The bill evidently breaks down enactments for the preservation of American rights among the three hundred trades engaged in the completion of high classed tonnage, and should not be countenanced by those who strenuously maintain that America is equal to the universal best.

Without doubt the minority committee on the free ship bill were possessed of the best national acumen in the premises and there is no excuse for the legislation which seeks to belittle the industry which put afloat 307,301 tons of American bottoms in 1891, especially when it is considered that 90 per cent of this special industry relates purely to labor.

If cheapness is heralded as the prime motive in this class of legislation let it be understood that cheap labor and cheap material must enter into the construction of cheap ships, quality of material and workmanship being entirely ignored, where then is the Americanism of this one-sided legislation?

The United States should build her own ships and any other legislation but proves to the world at large our incompetency and our eventual decadence in the arts which place a nation either in the van or the background of universal progression.

Quoting the views of the minority committee on the free ship bill, "enterprising Americans are looking to the sea. They are not demanding free ships. No petition has been filed in this House asking for them. No board of trade. No organization of merchants or importers or exporters has passed resolutions favoring the projected legislation," and none is asked for, therefore, none need be granted.

In 1890 we find the United States with 25,540 vessels having a gross tonnage of 7,633,676 tons, valued at $215,069,296 and all American built tonnage, what then do we want to go back a generation or two for and ask foreigners to build our vessels? There has been a steady and gradual increase in our building capacity, and it is but fair to ask that this steady increase of American prosperity be allowed to proceed on the proper course, and that Americans build their own vessels.

The admission of the Inman Liners to American registry would seem to be but a stepping stone for the free ship bill and a consequent decadence of shipbuilding in the United States.

The industries of the Great Lakes are liable to be injured in a more far reaching manner than can be appreciated at this time, if the advocates of the free ship bill are permitted to gain an ascendancy in Congress, and it behooves all commercial organizations to so advise the Congressmen representing their district so that any further steps taken towards placing the stars and stripes over foreign built bottoms may be discouraged from its inception. There is such a bill now pending on which a minority report has been made and discreet circumspection is necessary to prevent the carrying of these measures through the present Congress.

AN ERROR IN FIGURES.

On the U. S. A. general chart of Lake Erie, 1875 '78, Comstock survey, the position of Pelee Spit, (The Dummy) is in Long. 82°, 30′ and 20″ W., while in the light-house book the position is given as being in Long. 82° 38′ W., which is the Long. of Pelee Island, and not the Spit. The error is continued in giving the location of the island, for on the chart it is placed in long. 82° 38′ 23″ W., and in the light-house book as 82°, 45′, 30″ W.

The Mutual Marine insurance system ought to give satisfaction on the Great Lakes.

THE LAKE CENSUS BULLETIN.

The census bulletin on transportation by water credits the lakes with 2,784 vessels with total crews of 15,881 men. The estimate allows of less than six men to each vessel, a ridiculously low figure when it is considered that the Chicago lumber vessels always carry seven men.—[The Marine Record.

The Inland Lloyds vessel register names about 42 side-wheel steamers, 687 propellers, 857 schooners, and 451 tugs. This is by no means a complete list of boats on the lakes, as there are a large number which are not entered for insurance at all. The total of the numbers given above is 2,039, about five-sevenths of the number mentioned in the census report. The side-wheelers are all passenger boats, many of which carry as high as forty hands, and for which twenty-five men is a low average. The complement of the ordinary coal and ore freighters is seventeen men, as follows: one captain, two engineers, two mates, two watchmen, two wheelsmen, four deck hands, three firemen, and one cook. Besides these, many steamers carry five deck hands and four firemen, besides one oiler. None of them can get along without at least fifteen men, and a large number are line boats, which find it cheaper to carry a large crew of men to move freight in preference to paying forty cents per man per hour to have it stowed away. There are many passenger propellers carrying in some cases as high as sixty hands all told. Therefore twenty would be a very low average for the steamers. A captain, two mates, four deck hands, and one cook is the usual number required on a schooner or tow barge. A few get along with six men, but that is the least number, except under extraordinary circumstances, and as even the Chicago lumber hookers have to carry seven men, this number is a good average. Tugs must carry at least four men, and often have day and night crews. Attention is called to the following results:

Rig.	Number.	Average crew.	Total.
Sidewheelers	42	25	1,050
Propellers	687	20	13,740
Consorts and sail	859	7	6,013
Tugs	451	4	1,804
Grand total			22,607

Deducting the 2,039 boats from the census compilers' finding of 2,784, and there is a remainder of 745. These are almost entirely lumber "hookers" and small harbor tugs, not considered good risks. Allowing for 500 of the former, with crews of seven men each, and 245 for small craft, with three men each, there are 4,235 men to be added to the grand total of the above table, which gives at least 26,842 as the number employed. If actual figures could be secured there would be a showing much larger than is obtained by this calculation on low averages, and a result of from 30,000 to 35,000 as the number given actual employment on the lakes in the season would be found.—[The Cleveland Leader.

The marine editor of the Cleveland "Leader" is certainly within the lines in quoting the foregoing estimates. Fully 35,000 persons would be found to be actually engaged in the navigation of the lakes if authentic figures were quoted. From the proceedings of the thirty-ninth annual meeting of the board of supervising inspectors of steam vessels, 1891, pages 116 to 121, we find, that 8,496 licenses were granted to masters, mates, pilots and engineers. This is considerable more than half the total employes as given by the census bureau, and there are surely more men employed than officers; that is to say, even allowing that a percentage of the men renewing their licenses are not sailing, still there must at least be more than one man for each licensed officer. Further than this there are no licenses required for the large number of sail and towing vessels on the lakes, so that the total of 8,496 licenses does not even represent the number of masters and officers sailing on the lakes. As regards total crews. If we take the case of the Bradley Line freight steamer out of Cleveland we find 19 hands all told. What a sorry showing this makes for the average of less than six men to each boat. Again, the Buffalo liners usually carry 8 to 10 hands more than the ordinary freight steamers, and the passenger lines even a larger percentage than the liners. Evidently the statistics presented by Mr. Thomas J. Vivian are somewhat at variance with the actual numbers employed sailing on the great lakes, and we earnestly look for a revision of the figures as given in Bulletin 179.

SOO CANAL AND RIVER.

SAULT STE. MARIE, MICH.—There is no end of fault-finding among vessel men on account of the action of the canal officers in building a platform in the lock so as to keep the draft of water no greater than the depth over the sill. Quite recently a heavier sill was placed in the lock, thus diminishing the actual draft of water, and to follow up the idea a platform has been built, so that if a vessel touches on the sill, she will fetch up solid on the platform and require lightering; whereas, without the platform being built, they might frequently pass through. This departure is said to be a small piece of cunning work for which there was no occasion, and the platform ought not to have been built.

The ice has probably moved some of the small boulders out into the channel of the river to the east of the "Black Hole" and abreast of Topsail Island. A lighter and derrick, carrying a diving outfit, could easily remove all such minor obstructions, and at a small cost. Whatever the new work may promise for future commerce, the present channels ought to be conserved and the best possible depth of water given to the large tonnage now being kept moving almost on schedule time.

There are many reasons advanced for the low stage of water experienced, even after a hard winter. Regarding low water at the Sault Canal Captain Dan Buie, of the Wilson Line propeller Wallula, is quoted as follows:

"The low stage of water at the lower sill of the Sault lock appears to many as only a temporary annoyance, which will be relieved by June freshets, summer expansion of water, and other such acts of Providence, among which the seven years' theory of the rise and fall of water on the lakes and river is mentioned. But it can be observed that as the Hay Lake improvement progresses, the water at the foot of the rapids keeps falling. This can be accounted for from the fact that while the flow of water over the rapids is about the same as usual, there are now two deep water channels carrying off the water from the foot of the rapids, whereas there was only one outlet of any account previous to the digging of the Hay Lake channel. It would appear as though some means should have been taken to check the flow of water until such time as that channel was completed, the new lock finished, and Topsail Island range deepened. This could be done, and a fairly good stage of water at the present lock maintained by sinking cribs at the head of Hay Lake channel and keeping them there until the new lock is finished and Hay Lake channel ready for business."

LAKE LINE AGENTS.

The Chicago Lake Line Agents' Association held its annual meeting in the Arbitration room at the Board of Trade on Saturday afternoon. T. T. Morford, of the Union Line, was re-elected president, and J. C. Evans of the Anchor Line, secretary.

A letter was read from Senator Cullom in reference to Congressman Durborow's resolution repealing the act passed by the last Congress, giving the Secretary of War discretionary power to lease the government pier at the mouth of the river for business purposes. A committee was appointed, which will draw up the formal objection to a leasing of the government piers for any purpose whatever.

The association also adopted a memorial to the Chicago members of Congress, asking them to vote against the bill authorizing a bridge across the St. Lawrence, near Brockville and Morristown. This was immediately telegraphed to the Chicago Congressmen and the Illinois Senators.

The steamer Ossifrage, which was rebuilt last winter, has had her name changed to the James Smith.

THE "SERVE" BOILER TUBE.

While much credit is due to inventors for their ingenuity in devising important departures in practice in all industries, yet probably still greater credit should frequently be assigned to those parties who perseveringly work for their practical and absolutely successful adoption. The "Engineer" says: "In no instance do we believe this to be so apparent as in the case of the "Serve" tube, which our readers are aware has in its interior a number of ribs.

It has always been evident that to obtain the highest efficiency in any desired direction, the whole of the circumstances must be kept in view. This truism was not overlooked by the patentees, and it is gratifying to find that they have been able to work out what are suitable and what are unsuitable conditions for the "Serve' tubes. Following up this experience, they have decided not to offer to supply the "Serve" tubes until they have satisfied themselves that the conditions under which they will be worked are suited to their characteristics. The most unfavorable conditions would be low natural draft and very smoky coal. Small steamships with short funnels are therefore unable to avail themselves of the "Serve" tubes. Large steamships with high funnels, or with induced or forced draught, are suitable for the adoption of the "Serve" tube, even when they burn smoky coal. At a moderate rate, induced draught will keep the tubes cleaner than forced draught. At a rate of combustion of 30 lb. or more per square foot of grate surface per hour it is of no importance, so far as the tube is concerned, whether induced or forced draught, smoky or smokeless coal, be used. For natural draught a height of funnel of 65 feet is deemed necessary by the manufacturers of the "Serve" tubes for Welsh or equivalent quantity of steam coal, and for smoky coal a funnel 75 feet in height. When these conditions are offered, Messrs. John Brown & Co. are prepared to guarantee that the "Serve" tubes will give no trouble in use, and they will insure a minimum advantage, with cold air feed, of 10 per cent. increased evaporation, or of a corresdonding economy of fuel as may be preferred, and somewhat less when hot air is supplied to the furnaces. In re-tubing boilers of steamers complying with the above conditions, by substituting the "Serve" for plain tubes, at least 10 per cent. of coal will be saved by keeping the height of funnel or rate of artificial draught—cold air feed—the same. If the funnel be heightened 10 feet to 15 feet or the cold air feed draught be increased, so as to burn the same quantity of coal as previously with the plain tubes, at least 10 per cent. increase in the evaporation will be produced by the same consumption of coal. Although 10 per cent. is all that is guaranteed, greater economy will be obtained with cold air feed, even at a draught of 7-16 in. vacuum at the base of the funnel when Welsh coal is used, or at a draught of 1 2 in. vacuum with inferior coal, and at a draught of 3-4 in. vacuum 15 per cent. increase in the evaporation is obtainable. In new boilers, "Serve" tubes of slightly larger diameter than the plain ones which would otherwise be used, would make it unnecessary to increase the height of funnel to obtain the advantage in the shape of extra evaporation. The larger diameter would restore the tube area for the passage of the gases to that of the plain ones, and consequently the draught.

The above figures are based on many experiments of varied duration, and are well worthy of consideration by all steamship owners, marine and locomotive superintendent engineers. If a higher speed be required by competitors for the blue ribbon of the Atlantic, increased steam evaporation by one-fifth is obtainable without increasing the size of the boilers or burning additional fuel. Again, if increased carrying capability be the desideratum, either of cargo in mercantile steamers, or of bunker coal in cruisers and battleships, these benefits are obtainable.

As we have already indicated, great care has been taken in arriving at the above figures, and we see no reason to doubt that Messrs. John Brown & Co's conclusions are warranted by the facts—and there is every likelihood, as the outcome of the experience obtained at such great outlay, that further benefits will accrue to steam users. At present we can only indicate the nature of this new departure in boiler engineering, viz., the developement of a combination of a high rate of induced draught and hot air feed. It has been patented by Messrs. John Brown & Co, and will be at work more extensively than at present before many months elapse.

The new Two Harbors ore docks, said to be the finest on the Lakes, will be ready for business next week.

INCORPORATED 1794.

Insurance Company of North America.

CAPITAL, Paid up in Cash, - - $3,000,000.00
ASSETS, - - - - - - 9,273,220.00

CHARLES PLATT, President. WILLIAM A. PLATT, Vice-President.
EUGENE L. ELLISON, 2nd Vice-President. GREVILLE E. FRYER, Sec'y & Treas.
JOHN H. ATWOOD, Assistant Secretary.

Lake Marine Department. GEORGE L. McCURDY, Manager, CHICAGO, ILLS.

MARINE AND INLAND INSURANCE.

ATLANTIC MUTUAL INSURANCE COMPANY,

(ORGANIZED 1842.) Office, 51 Wall Street, NEW YORK.

Insures against Marine and Inland Transportation Risks and will issue Policies making Loss Payable in England.

Assets over $10,000,000 for the Security of its Policies.

The profits of the Company revert to the assured, and are divided annually upon the premiums terminated during the year; thereby reducing the cost of insurance. For such dividends, certificates are issued bearing interest until ordered to be redeemed, in accordance with the charter.

J. D. JONES, Prest. W. H. H. MOORE, Vice-Prest. A. A. RAVEN, 2nd Vice-Prest. J. H. CHAPMAN, Secy.

ORGANIZED 1881.

Michigan Fire and Marine Insurance Co.,

CAPITAL, - - - - $ 400,000
ASSETS, - - - - - 900,000
LOSSES PAID, over - - - 1,500,000

D. WHITNEY, Jr., President. EUGENE HARBECK, Secretary.

This Company will transact a Hull and Cargo business on the Lakes during the season of 1892.

LOSSES PROMPTLY PAID. INSURE IN A STRONG HOME COMPANY. DETROIT, MICH.

CAPITAL $300,000.

The Marine Bank Company,

Incorporated in 1891 under State Law. CLEVELAND, OHIO.

Successors to E. B. HALE & CO., established in 1852.

DIRECTORS:

W. H. BARRISS, President. H. C. RANNEY, Vice-President. W. B. HALE, Cashier.
C. E. BURKE. THOS FITZPATRICK. THOS. H. WHITE. MARTYN BONNELL

Would be pleased to meet or correspond with any one whose present Banking relations are not entirely satisfactory, or who, for any reason, propose to open a new account.

We promise to make every effort to make our Bank a safe, agreeable and profitable place to do business.

Improved Bolt Helmet.

ESTABLISHED, 1844.

A. SCHRADER & SON.

Manufacturers of

Submarine Armor

AND

Diving Apparatus.

32 ROSE ST., N. Y.

McKinnon Iron Works

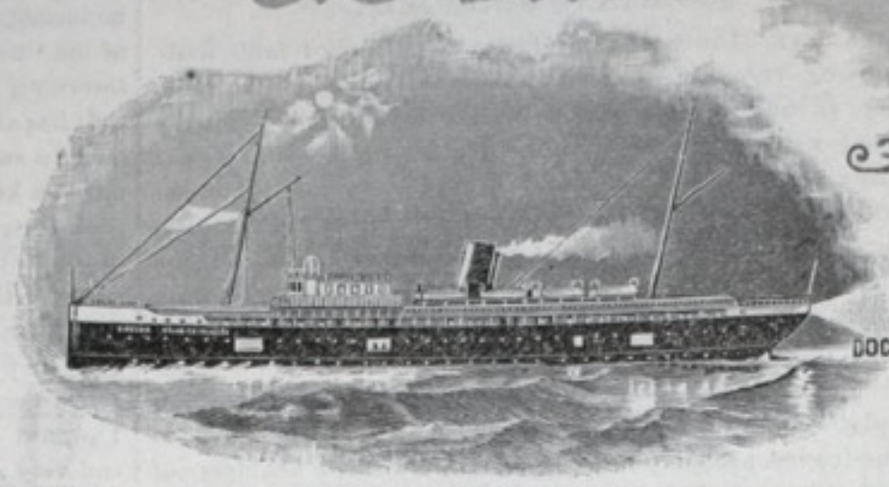
ASHTABULA HARBOR, O.

Machinists, Boilermakers, Shipsmiths and Steamfitters.

We carry a large and complete stock of Engineer's Supplies, Oils, Packings, Hose, Air Pump Valves, Brass Goods, and other Steam Fittings. You will find our prices as low as at any place on the lakes, and our goods the best we can buy.

W S. McKINNON, Proprietor.

O. S. Richardson Fueling Co.



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SUCCESSORS TO WM. A. LIGHTHALL.

LIGHTHALL SURFACE CONDENSERS.

Lighthall Surface Condenser with Cobb's Improvements. Light Weight Brass Condensers a Specialty. Also Feed Water Heaters, Tube Heads, Screw Glands, Packings, Etc.

Builders of Brass and Composition Surface Condensers for U. S. Cruisers MAINE, No. 11, Gunboats Nos. 5 and 6, CONCORD and BENNINGTON and HARBOR DEFENCE RAM.

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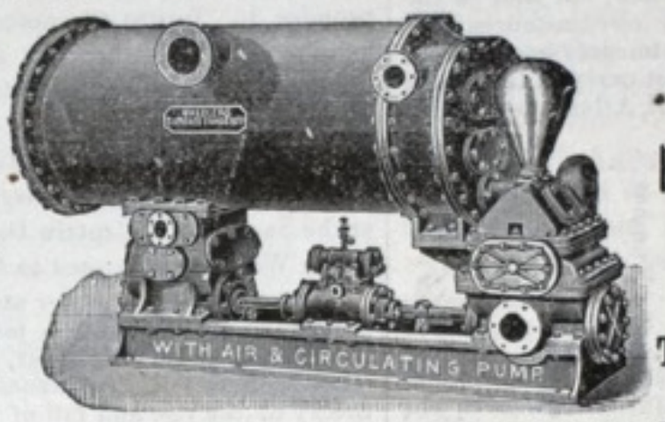

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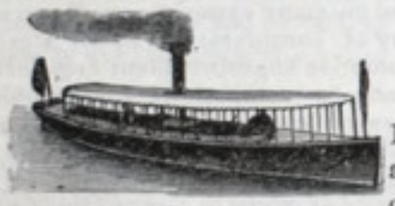

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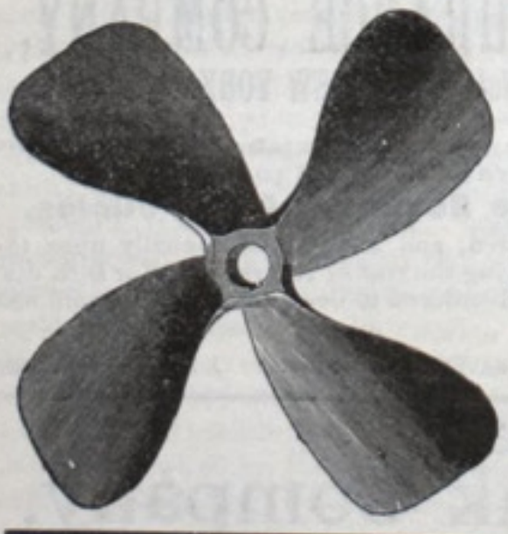

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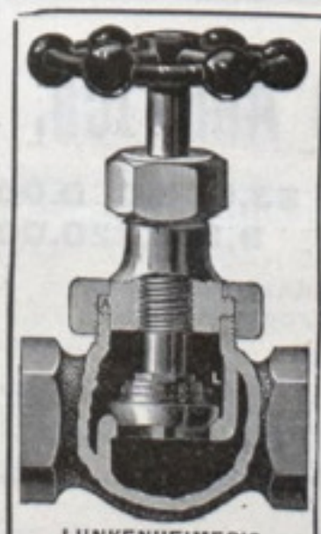

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